



Regulatory Requirements for Installations for new Underground Storage Tank Systems

Hazardous Waste Program fact sheet

3/2006

Purpose

This guide is intended to help owners and operators understand the state requirements for installation of new underground storage tank (UST) systems used to store regulated substances. These requirements are codified in the code of state regulations at 10 CSR 20-10 and are available on the Internet at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-20

Although owners and operators often hire contractors to install new tank systems and rely on them to know the requirements, the department must by law hold the owners and operators responsible when a system does not meet state regulations. This guide is intended to help educate owners and operators on the basic state requirements for new UST systems.

Scope

This bulletin is intended primarily as a guide for new installations at service stations and convenience stores that will operate petroleum UST systems. However, it also applies to any new underground tank installation where the tank is larger than 110 gallons, and where a regulated substance will be stored. There are a few exceptions, such as residential or farm tanks less than 1,100 gallons, and there are some deferrals for certain types of tank systems, such as field-constructed tanks and emergency generator tanks. Also, additional requirements apply to hazardous substance USTs. Questions concerning small (e.g. tanks less than 2,000 gallons) or special purpose (e.g. hazardous substance or emergency generator) USTs should be directed to the nearest Department of Natural Resources' Regional Office.

Checklist

In the following checklist a tank system must incorporate at least one item under every heading, unless otherwise noted, in order to ensure that it will be in compliance with state regulations.



The following checklist is designed to summarize the regulatory requirements for new UST installations but it may not cover every aspect or situation. The code of state regulations, referenced above, can be found online or can be obtained by contacting the Secretary of State's office at (573) 751-4015.

Compliance Checklist

1. Initial 30-Day Notification (please include a - e) (10 CSR 20-10.022)

- a. Owner's name ☐
- b. Name and location of tank site ☐
- c. Date installation will commence ☐
- d. Date tank will be brought online ☐
- e. Installer name and phone number ☐
- f. Request for waiver of 30 day notification ☐

2. Tank Design* (10 CSR 20-10.020(1)(A))

- a. Fiberglass reinforced plastic (FRP) ☐
- b. Dielectrically coated steel tank with CP** (STI-P3©) ☐
- c. FRPclad steel tank (ACT100©) ☐
- d. Double-walled tank*** ☐
- e. Bare metal in non-corrosive environment# ☐

3. Piping Design* (10 CSR 20-10.020(1)(B)1. – 6.)

- a. FRP piping ☐
- b. Dielectrically coated steel with CP ☐
- c. Flexible thermoplastic piping ☐
- d. Double-walled thermoplastic piping ☐
- e. Bare metal in non-corrosive environment# ☐

4. Spill Protection (10 CSR 20-10.020(1)(C)1.A.)

- a. Spill bucket at fill pipe ☐
- b. Spill catchment basin ☐
- c. Not required if filling less than 25 gallons at a time (e.g. used oil tanks) ☐

5. Overfill Protection (10 CSR 20-020(1)(C)1.B.)

- a. Automatic shut off device ☐
- b. Overfill alarm ☐
- c. Ball float valve ☐
- d. Not required if filling less than 25 gallons at a time (e.g. used oil tanks) ☐

* Tank and piping designs must be built and installed per industry standards. A list of industry standards used to meet these requirements is attached.

** CP stands for cathodic protection or corrosion protection.

*** Steel outer walls of double walled tanks must still have corrosion protection.

Must be certified by a corrosion expert not to be corrosive enough to cause a release for the life of the system.

- 6. Release Detection for Tanks (10 CSR 20-10.043)**
- a. Inventory control and tightness testing (may be used for only 10 years after new tank is brought on-line; tank tightness test required every five years) ☐
 - b. Automatic tank gauge (ATG) ☐
 - c. Groundwater monitoring ☐
 - d. Vapor monitoring ☐
 - e. Interstitial monitoring (for double walled tanks) ☐
 - f. Statistical inventory reconciliation (SIR) ☐
 - g. Not required (emergency generator tanks only) ☐
 - h. Other method that meets requirements of 10 CSR 20-10.043(H) ☐
- 7. Release Detection for Piping* (10 CSR 20-10.044)**
- a. Automatic line leak detector (required for pressurized systems) ☐
 - b. ATG capable of line testing (e.g. includes an electronic LLD) ☐
 - c. Groundwater monitoring ☐
 - d. Vapor monitoring ☐
 - e. Interstitial monitoring (for double walled piping) ☐
 - f. Statistical inventory reconciliation (SIR) ☐
 - g. Not required – “Safe Suction” (meeting 10 CSR 20-10.041(1)(B)2.A-E) ☐
 - h. Suction (with three-year line tightness testing) ☐
 - i. Suction (with c, d, e or f above) ☐
- 8. Corrosion Protection** (10 CSR 20-10.020)**
- a. Meets corrosion protection by design ● ☐
 - b. Sacrificial anode system ☐
 - c. Impressed current system ☐
- 9. Installation per Industry Standard (10 CSR 20-10.020(1)(D))**
- a. Installed per American Petroleum Institute Std. 1615 ☐
 - b. Installed per Petroleum Equipment Institute RP100 ☐
- 10. Certification of Installation (10 CSR 20-10.020(1)(E) & 10.022(4))**
- a. Installer certified by tank and piping manufacturer ☐
 - b. Installation inspected and certified by a professional engineer ☐
 - c. Manufacturer’s checklists completed ● ● ☐
 - d. Inspected and approved by the Department of Natural Resources ● ● ● ☐
- 11. Financial Responsibility Coverage (10 CSR 20-11)**
- a. Petroleum Storage Tank Insurance Fund ☐
 - b. Financial test of self-insurance ☐
 - c. Guarantee ☐
 - d. Insurance or risk retention group ☐
 - e. Surety bond ☐
 - f. Letter of credit ☐
 - g. Trust fund ☐
 - h. Local government mechanism ☐

* Pressurized systems require automatic line leak detectors (ALLD) plus one monthly monitoring method 7. c-f. An alternative to one of the monthly monitoring methods is to do annual line tightness testing. Mechanical and electronic ALLDs cannot be used with suction systems.

** A corrosion expert must design all field installed CP systems, except for CP for metallic piping connectors (including flex connectors) in sump or under dispensers. All CP systems must be tested within six months of installation and every three years thereafter.

● FRP and FRP clad tanks (ACT100©) and FRP or thermoplastic piping do not require CP. STI-PC© tanks have CP as part of their design.

●● If the manufacturer’s instructions are not followed, the warranty may be voided, and could result in a premature release.

●●● Highly recommended, however, this does not supersede a manufacturer’s requirements for licensing or certification of the installer, if applicable.

- 12. Registration within 30 days** (must include a – d) (10 CSR 20-10.022(2))
- a. Registration form completed ☐
 - b. Registration form signed by owner ☐
 - c. Certification signed by installer ☐
 - d. Registration (with original signatures) mailed within 30 days of bringing tank into use ☐

In the St. Louis and Kansas City areas contact one of the following offices for:

13. Stage I and II Vapor Recovery Construction Permits*

Kansas City Area (Stage I only)

- a. Kansas City Dept. of Health (816) 513-6169 (Kansas City Metro Area) or ☐
- b. Kansas City Regional Office (816) 622-7000 (for Clay, Jackson and Platte counties) ☐

St. Louis Area (Stage I and II)

- a. St. Louis City (314) 613-7300 or ☐
- b. St. Louis Regional Office (314) 416-2960 (for Franklin, Jefferson or St. Charles counties) or ☐
- c. St. Louis County (314) 615-8923 ☐

Summary

The above checklist is a summary of the regulatory requirements for petroleum UST systems. If a system meets these requirements, it should be in compliance. However, the checklist may not cover every aspect of an installation. It is again highly recommended that system owners or operators have an inspection by the department before the installation is completed. Please note that a three-day notice to the regional office prior to beginning on-site activities is needed to assist the department in scheduling an inspection.

Mention of specific tank designs in the above checklist is not intended as an endorsement by the department of any tank or piping product or manufacturer.

For questions or further assistance contact the Tanks Section at (573) 751-6822.

State Insurance Fund

Missouri Petroleum Storage Tank Insurance Fund
P.O. Box 836
Jefferson City, MO 65102
1-800-765-2765
Fax: (573) 522-2354
Phone: (573) 522-2352
www.pstif.org

*Permits must be applied for before construction begins.

Industry Standards

1. Underwriters' Laboratory (UL) Standard 1316 –
Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products
2. American Society for Testing and Materials (ASTM) Standard D4021-86
Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks
3. Steel Tank Institute (STI)
Specifcation for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks
4. Underwriters' Laboratory (UL) Standard 1746
Corrosion Protection Systems for Underground Storage Tanks
5. National Association of Corrosion Engineers (NACE) Standard RP-02-85
Control of External Corrosion on Metallic Buried, Partially Buried or Submerged Liquid Storage Systems
6. Underwriters' Laboratory (UL) Standard 58
Standard for Steel Underground Tanks for Flammable and Combustible Liquids
7. Association for Composite Tanks ACT-100
Specification for the Fabrication of FRP Clad Underground Storage Tanks
8. Underwriters' Laboratory (UL) Subject 971
UL Listed Non-Metal Pipe
9. Underwriters' Laboratory Standard 567
Pipe Connectors for Flammable and Combustible and LP Gas
10. National Fire Protection Association (NFPA) Standard 30
Flammable and Combustible Liquids Code
11. American Petroleum Institute (API) Publication 1615
Installation of Underground Petroleum Storage Systems
12. American Petroleum Institute (API) Publication 1632
Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems
13. National Association of Corrosion Engineers (NACE) Standard RP-01-69
Control of External Corrosion on Submerged Metallic Piping Systems
14. Petroleum Equipment Institute (PEI) Publication RP100
Recommended Practices for Installation of Underground Liquid Storage Systems
15. American Petroleum Institute (API) Publication 1626
Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations
16. American Petroleum Institute (API) Publication 1627
Storage and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations
17. American Petroleum Institute (API) Publication 1621
Recommended Practice for Bulk Liquid Stock Control at Retail Outlets

Standards Contact Information

American Petroleum Institute (API)

1220 L Street, Northwest
Washington, D. C. 20005
(202) 682-8000
Publications: (202) 682-8375
www.api.org

American Society for Testing and Materials (ASTM)

100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
(610) 832-9585
Fax: (610) 832-9555
www.astm.org

Association for Composite Tanks (ACT)

108 North State St., Ste. 720
Chicago, IL 60602
(301) 235-6000

National Association of Corrosion Engineers (NACE)

1440 South Creek Drive
Houston, TX 77084-4906
(281) 228-6200
Fax: (281) 228-6300
www.nace.org/nace/index.asp

National Fire Protection Association (NFPA)

1 Batterymarch Park
Quincy, MA 02169-7471
1-800-344-3555
Fax: (617) 770-0700
Phone: (617) 770 3000
www.nfpa.org/catalog/home/index.asp

Petroleum Equipment Institute (PEI)

P.O. Box 2380
Tulsa, OK 74101-2380
(918) 494-9696
Fax: (918) 491-9895
www.pei.org/

Steel Tank Institute (STI)

570 Oakwood Road
Lake Zurich, IL 60047
(847) 438-8265
Fax: (847) 438-8766
www.steeltank.com/

Underwriters Laboratories Inc. (UL)
333 Pfingsten Road
Northbrook, IL 60062-2096
(847) 272-8800
Fax: (847) 272-8129
www.ul.com/

For More Information

Missouri Department of Natural Resources
Hazardous Waste Program
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-3176
www.dnr.mo.gov/env/hwp/index.html